



Mit-0506.ST25.txt  
SEQUENCE LISTING

<110> Chen, Jianzhong  
Ge, Qingshan  
Eisen, Herman

<120> Influenza Therapeutic

<130> 0492611-0506

<140> 10/674,159

<141> 2003-09-29

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<170> PatentIn version 3.2

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gaaaaggcca	ataaaaattaa	atctgagaaa	acacacatcc	acatttttctc	gttcactggg	480
gaagaaatgg	ccacaaaggc	cgactacact	ctcgatgaag	aaagcagggc	taggatcaaa	540
accaggctat	tcaccataag	acaagaaatg	gccagcagag	gcctctggga	ttcctttcgt	600
cagtccgaga	gaggagaaga	gacaattgaa	gaaaggtttg	aaatcacagg	aacaatgcgc	660
aagcttgccg	accaaagtct	cccgccgaac	ttctccagcc	ttgaaaattt	tagagcctat	720
gtggatggat	tcgaaccgaa	cggctacatt	gagggcaagc	tgtctcaaata	gtccaaagaa	780
gtaaatgcta	gaattgaacc	ttttttgaaa	acaacaccac	gaccacttag	acttccgaat	840
gggcctccct	gttctcagcg	gtccaaattc	ctgctgatgg	atgccttaaa	attaagcatt	900
gaggacccaa	gtcatgaagg	agaggggaata	ccgctatatg	atgcaatcaa	atgcatgaga	960
acatttcttg	gatggaagga	acccaatgtt	gttaaaccac	acgaaaaggg	aataaatcca	1020
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aaaattccaa	agactaaaaa	tatgaaaaaa	acaagtcagc	taaagtgggc	acttggtgag	1140
aacatggcac	cagaaaaggt	agactttgac	gactgtaaaag	atgtaggtga	tttgaagcaa	1200
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aaggcatgcg	aactgacaga	ttcaagctgg	atagagcttg	atgagattgg	agaagatgtg	1320
gctccaattg	aacacattgc	aagcatgaga	aggaattatt	tcacatcaga	ggtgtctcac	1380
tgagagcca	cagaatacat	aatgaagggg	gtgtacatca	atactgcctt	acttaatgca	1440
tcttgtgcag	caatggatga	tttccaatta	attccaatga	taagcaagt	tagaactaag	1500
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gccataggcc	aggtttcaag	gcccattgtc	ttgtatgtga	ggacaaatgg	aacctcaaaa	1740
attaaaatga	aatgggggaat	ggagatgagg	cgttgtctcc	tccagtcact	tcaacaaatt	1800
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gagaacaaat	cagaaacatg	gcccattgga	gagtctccca	aaggagtggg	ggaaagtctc	1920
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tgccctaatta	atgatccctg	ggttttgctt	aatgcttctt	ggttcaactc	cttccttaca	2160
catgcattga	gtagttgtg	gcagtgtctac	tatttgctat	ccatactgtc	caaaaaagta	2220

ccttgtttct act

2233

&lt;210&gt; 122

&lt;211&gt; 2183

&lt;212&gt; DNA

&lt;213&gt; Influenza virus type A PA segment

&lt;400&gt; 122

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agcgaaagca ggtactgatt caaaatggaa gattttgtgc gacaatgctt caatccgatg      60
attgtcgagc ttgcggaaaa ggcaatgaaa gagtatggag aggacctgaa aatcgaaaca      120
aacaaatttg cagcaatatg cactcacttg gaagtgtgct tcatgtattc agattttcac      180
ttcatcgatg agcaaggcga gtcaatagtc gtagaacttg gcgatccaaa tgcacttttg      240
aagcacagat ttgaaataat cgaggggaaga gatcgacaaa tagcctggac agtaataaac      300
agtatttgca acactacagg ggctgagaaa ccaaagtttc taccagattt gtatgattac      360
aagaagaata gattcatcga aattggagta acaaggagag aagttcacat atactatctg      420
gaaaaggcca ataaaattaa atctgagaag acacacatcc acattttctc attcactggg      480
gaggaaatgg ccacaaaggc cgactacact ctcgatgaag aaagcagggc taggatcaaa      540
accaggctat tcaccataag acaagaaaatg gctagcagag gcctctggga ttcctttcgt      600
cagtccgaga gaggcgaaga gacaattgaa gaaagatttg aaatcacagg aacaatgcgc      660
aagcttgccg accaaagtct cccgccaaac ttctccagcc ttgaaaattt tagagcctat      720
gtggatggat tcgaaccgaa cggctacatt gagggcaagc tttctcaaat gtccaaagaa      780
gtaaattgcta gaattgaacc ttttttgaaa tcaacaccac gaccacttag acttccggat      840
gggcctccct gttctcagcg gtccaaattc ctgctgatgg atgccttaaa attaagcatt      900
gaggacccaa gtcatgaggg agaggggata ccgctatatg atgcaatcaa atgcatgaga      960
acattctttg gatggaagga acccaatgtt gttaaaccac acgaaaaggg aataaatcca     1020
aattatcttc tgtcatggaa gcaagtactg gcagaactgc aggacattga gaatgaggag     1080
aaaattccaa ggactaaaaa tatgaagaaa acgagtcagt taaagtgggc acttggtgag     1140
aacatggcac cagaaaagggt agactttgac gattgtaaag atgtaggcga tttgaagcaa     1200
tatgatagtg atgaaccaga attgaggtcg cttgcaagtt ggattcagaa tgagttcaac     1260
aaggcatgtg aactgaccga ttcaagctgg atagagctcg atgagattgg agaagatgcg     1320
gtccaattg aacacattgc aagcatgaga aggaattatt tcacagcaga ggtgtctcat     1380
tgagagcca cagaatacat aatgaagggg gtgtacatca atactgcctt gcttaatgca     1440
tcctgtgcag caatggatga tttccaatta attccaatga taagcaagtg tagaactaag     1500
gaggaagggc gaaagaccaa tttgtacggt ttcatacataa aaggaagatc ccacttaagg     1560
aatgacaccg atgtggtaaa ctttgtgagc atggagtttt ccctcactga cccaagactt     1620

```

## Mit-0506.ST25.txt

gaaccacaca aatgggagaa gtactgtgtt cttgaggtag gagatatgct tctaagaagt	1680
gccataggcc atgtgtcaag gcctatgttc ttgtatgtga ggacaaatgg aacctcaaaa	1740
attaaatga aatgggggat ggaaatgagg cgttgccctcc ttcagtcact tcaacaaatc	1800
gagagtatga ttgaagctga gtcctctgtc aaggagaaaag acatgaccaa agagttcttt	1860
gaaaacaaat cagaaacatg gcccgttggg gagtccccca aagtcggtat tcaacagctt	1920
gtatgcatct ccacaactgg aaggattttc agctgaatca agaaaactgc ttcttatcgt	1980
tcaggctctt agggacaacc tggaacctgg gacctttgat cttggggggc tatatgaagc	2040
aattgaggag tgcctgatta atgatccctg ggttttgctt aatgcttctt ggttcaactc	2100
cttcctcaca catgcattga gatagtgtg gcaatgctac tatttgctat ccatactgtc	2160
caaaaaagta ctttgtttct act	2183

<210> 123  
 <211> 2233  
 <212> DNA  
 <213> Influenza virus type A PA segment

<400> 123	
agcaaaagca ggtactgatc cgaaatggaa gaatttgtgc gacaatgctt caatccgatg	60
attgtcgagc ttgctgaaaa agcaatgaaa gagtatggag aggatcggaa aatcgaaaca	120
aacaaatttg cagcaatatg cactcacttg gaagtatgct tcatgtattc agattttcat	180
ttcatcaatg agcaaggcga gtcaataata gtagagcttg atgatccaaa tgcacttttg	240
aagcacagat ttgaaataat agaggggaaga gatcgacaaa tggcctggac agtagtaaac	300
agtatttgca aactacagg agctgagaaa ccgaagtffc tgccagattt gtatgattac	360
aaggagaata gattcatcga gattggagtg acaaggaggg aagtccacat atactatctt	420
gaaaaggcca ataaaattaa atctgagaag acacacatcc acattttctc attcactggg	480
gaagaaatgg ccacaaaggc cgactacact ctcgatgagg aaagcagggc taggatcaag	540
accagactat tcaccataag acaagaaatg gctagcagag gcctctggga ttcctttcgt	600
cagtccgaaa gaggcgaaga aacaattgaa gaaagatttg aaatcacagg gacaatgcgc	660
aggctcgccg accaaagtct cccgccgaac ttctcctgcc ttgagaattt tagagcctat	720
gtggatggat tcgaacccaa cggctacatt gagggcaagc tttctcaa atgtccaaagaa	780
gtaaatgcta aaattgagcc ttttctgaaa acaacaccaa gaccaattaa acttccggat	840
gggcctcctt gctctcagcg gtccaaattc ctgctgatgg atgctttaaa attaagcatt	900
gaggacccaa gtcacgaagg agaggggaata ccactatatg atgcatcaa gtgtatgaga	960
acattctttg gatggaaaga accctatgtt gttaaaccac acgataaggg aataaatcca	1020
aattatctgc tgtcatggaa gcaattactg gcagaactgc aggacattga gaatgaggag	1080

## Mit-0506.ST25.txt

```

aagattccaa gaaccaaaaa catgaagaaa acgagtcagc taaagtgggc acttggtgag 1140
aacatggcac cagagaaggt agactttgac gactgtagag atataagcga tttgaagcaa 1200
tatgatagtg atgaacctga attaagggtca ctttcaagct ggatccagaa tgagttcaac 1260
aaggcatgcg agctgaccga ttcaatctgg atagagctcg atgagattgg agaagatgtg 1320
gctccaattg aacacattgc aagcatgaga aggaattact tcacagcaga ggtgtctcag 1380
tgacagagcca cagaatatat aatgaagggg gtatacatta atactgcctt gcttaatgca 1440
tcctgtgcag caatggacga tttccaacta attcccatga taagcaaatg tagaactaaa 1500
gaggggaaggc gaaagaccaa tttatatggt ttcatacataa aaggaagatc tcacttaagg 1560
aatgacaccg acgtggtaaa ctttgtgagc atggagtttt ctctcactga cccaagactt 1620
gagccacaca aatgggagaa gtactgtgtt cttgagatag gagatatgct actaagaagt 1680
gccataggcc aggtgtcaag gcccatgttc ttgtatgtga ggacaaatgg aacatcaaag 1740
attaaaatga aatggggaat ggagatgagg cgttgcctcc ttcagtcact ccaacaaatc 1800
gagagtatga ttgaagccga gtcctctgtc aaggagaaaag acatgaccaa agagtttttc 1860
gagaataaat cagaaacatg gccattgga gagtcccca aaggagtgga agaaggttcc 1920
attgggaagg tctgcaggac tttattagcc aagtcggtat tcaatagcct gtatgcatct 1980
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agggacaatc ttgaacctgg gacctttgat cttggggggc tatatgaagc aattgaggag 2100
tgcctgatta atgatccctg ggttttgctt aatgcgtctt ggttcaactc cttcctaaca 2160
catgcattaa gatagtgtg gcaatgctac tatttgctat ccatactgtc caaaaaagta 2220
ccttgtttct act 2233

```

```

<210> 124
<211> 2209
<212> DNA
<213> Influenza virus type A PA segment

```

```

<400> 124
atggaagatt ttgtacgaca atgctttaat ccgatgattg tcgaacttgc ggaaaaggca 60
atgaaagagt atggagagga tcttaaaatc gaaacaaaca aatttgcagc aatatgcact 120
cacttggaag tatgcttcat gtattcagat tttcatttca tcaatgagca aggcgagtca 180
atagtggtag aacttgatga tccaaatgca cttttgaagc acagatttga aataatagag 240
ggaagagacc gcacaatggc ctggacagta gtaaacagta tttgcaacac cacaggagct 300
gagaaaccga agtttctgcc agatttgtat gattacaagg agaatagatt catcgagatt 360
ggagtgacaa ggagagaagt ccacatatac taccttgaaa aggccaataa aattaaatct 420
gagaatacac acatccacat tttctcattc actgggggaag aaatggccac aaaggccgac 480

```



## Mit-0506.ST25.txt

tacactctcg atgaggaaaag caggggctagg atcaaaaacca gactattcac cataagacaa	540
gagatggcca acagaggcct ctgggattcc tttcgtcagt ccgaaagagg cgaagaaaca	600
attgaagaaa gatttgaaat cacagggaca atgcgcaggc ttgccgacca aagtctccccg	660
ccgaacttct cctgccttga gaattttaga gcctatgtgg atggattcga accgaacggc	720
tacattgagg gcaagctttc tcaaagtgtcc aaagaagtga atgcaaaaat tgaacctttt	780
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ggaataccac tatatgatgc gatcaaatgc atgagaacat tttttggatg gaaagaaccc	960
tatattgtta aaccacacga aaaggggata aatccaaatt atctgctgtc atggaagcaa	1020
gtactggcag aactgcagga cattgaaaat gaggagaaaa ttccaagaac taaaaacatg	1080
aagaaaacga gtcagctaaa gtgggcactt ggtgagaaca tggcaccaga gaaggtagac	1140
tttgacaact gttagagacgt aagcgatttg aagcaatatg atagtgcga acctgaatta	1200
aggtcacttt caagctggat ccagaatgag ttcaacaagg catgcgagct gaccgattca	1260
acttggatag agctcgatga gattggagaa gacgtggctc caattgaata cattgcaagc	1320
atgagaagga attacttcac agcagagggtg tccccattgca gagccacaga atatataatg	1380
aaggggggat acattaatac tgccttgctt aatgcatcct gtgcagcaat ggacgatttc	1440
caactaattc ccatgataag caagtgtaga actaaagaag gaaggcgaaa gaccaattta	1500
tatggccttc tcataaaagg aagatctcac ttaaggaatg acaccgacgt ggtaaacctt	1560
gtgagcatgg agttttctct cactgacccg agacttgagc cacacaaatg ggagaaatac	1620
tgtgtccttg agataggaga tatgctacta agaagtgtca taggccagat gtcaaggcct	1680
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atgaggcggt gcctccttca gtcactccaa caaatcgaga gtatgattga agccgagtcc	1800
tctgtcaagg agaaagacat gaccaaagag ttttttgaga ataaatcaga aacatggccc	1860
attggggagt cccccaaggg agtggaagat ggttccattg ggaaggctctg caggacttta	1920
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ttgcttaatg cgtcgtgggt caactccttc ctaacacatg cattaagata gttgtggcaa	2160
tgctactatt tgctatccat actgtccaaa aaagtacctt gtttctact	2209

<210> 125  
 <211> 2233  
 <212> DNA

&lt;213&gt; Influenza virus type A PA segment

&lt;400&gt; 125

```

agcaaaagca ggtactgatc caaaatggaa gactttgtgc gacaatgctt caatccaatg      60
attgtcgcgagc ttgcggaaaa gacaatgaag gagtatgggg aagatccgaa gattgaaaca      120
aacaagttcg ctgcaatatg cacacactta gaagtctgct tcatgtattc agacttccat      180
ttcattgacg aacgaggcga atcaataatt gtggaatctg gtgatccgaa tgcattgttg      240
aaacaccggt ttgaaataat tgaaggaaga gaccgagcaa tggcctggac agtggtgaat      300
agcatctgca acaccacagg agtcgataaa cccaaatttc ttccggatct atacgactac      360
aaggaaaacc gattcactga aattggtgtg acacggaggg aagttcatat atattactta      420
gagaaagcta acaagataaa atccgagaaa acacatatcc acatcttctc attcactgga      480
gaagaaatgg ccactaaagc tgactacacc cttgatgaag agagcagggc aagaatcaaa      540
accagactat tcaccataag acaggaaatg gcaagcaggg gtctatggga ctcttttcgt      600
cagtccgaga gaggcgaaga gacaattgaa gaaagatttg aaatcacagg gaccatgcgt      660
aggcttgccg accaaagtct cccacctaac ttctccagcc ttgaaaactt tagagcctat      720
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aattatctcc tggcttggaa gcagggtgctg gcagaactcc aggatattga aaatgaggat     1080
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aatatggcac cggaaaaagt ggactttgag gattgcaaag acattgatga tctgaaacag     1200
taccacagtg atgagccaga gcttagatcg ctagcaagct ggatccagaa tgagttcaac     1260
aaggcatgtg aattgaccga ttcgagctgg atagaacttg atgagatagg ggaagatgtt     1320
gcccccaattg agcacattgc aagtatgaga aggaactact tcacagcgga ggtgtcccat     1380
tgcaagggcta ctgagtacat aatgaagggg gtttacataa atacagcttt gctcaatgca     1440
tcttgtgcag ccatggatga cttccaactg attccaatga taagcaa atg cagaacaaaa     1500
gaaggaagga ggaggacaaa cctgtatggg ttcatgttaa aaggaaggtc ccatttgaga     1560
aatgatactg acgtggtgaa ctttgtgagt atggaattct cccttactga cccaaggctg     1620
gagccacaca aatgggaaaa gtactgtgtt cttgaaatag gggaaatgct cttgcggact     1680
gcaataggtc aagtgtcaag gcccatgttc ctgtatgtga gaaccaacgg aacctcaaaa     1740
attaagatga aatgggggat ggaaatgagg cgctgccttc ttcaatctct tcaacagatt     1800

```

## Mit-0506.ST25.txt

gagagcatga	tcgaggctga	gtcttctatc	aaagagaaaag	acatgaccaa	agaattcttt	1860
gaaaacagat	cggagacatg	gccaatggga	gagtcaccta	agggagtggga	ggaaggctcc	1920
atcgggaagg	tgtgcagaac	cttactagca	aaatctgtgt	tcaacagcct	atattcatct	1980
ccacaactcg	aaggattttc	agctgaatcg	agaaaactac	tactcattgt	tcaagcactt	2040
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tgcctgatta	atgatccctg	ggttttgctt	aatgcatctt	ggttcaactc	cttcctcaca	2160
catgcactaa	gatagtgtg	gcaatgctac	tatttgctat	ccatactgtc	caaaaaagta	2220
ccttgtttct	act					2233

&lt;210&gt; 126

&lt;211&gt; 2233

&lt;212&gt; DNA

&lt;213&gt; Influenza virus type A PA segment

&lt;400&gt; 126

agcaaaagca	ggtactgatc	cgaaatggaa	gactttgtgc	gacaatgctt	caatccaatg	60
attgtcgagc	ttgcggaaaa	gacaatgaag	gaatatgggg	aagacccgaa	aattgaaaca	120
aataagttcg	ctgcaatatg	cacacactta	gaagtctgct	tcatgtattc	agacttccat	180
ttcattgacg	aacgaggcga	atcaataatt	gtggaatctg	gtgatccaaa	tgcattgttg	240
aagcacaggt	ttgaaataat	tgaaggaaga	gaccgagcaa	tggcctggac	agtgggtgaat	300
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gaaaaagcta	acaagataaa	atccgagaaa	acacatatcc	acatcttttc	attcactgga	480
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gtgaacgcca	gaattgagcc	atttctgaag	acaacaccac	gtcccctcag	attgcctgat	840
ggacctccct	gctcccagcg	gtcgaaattc	ttgctgatgg	atgctctgaa	attaagcatt	900
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acattcttcg	gctggagaga	gccaacatc	atcaagccac	acgagaaggg	cataaatccc	1020
aattatcttc	tggcttggaa	gcagggtgctg	gcagaactcc	aggatattga	aaatgaggat	1080
aaaatcccaa	aaacaaaagaa	catgaagaaa	acaagccaat	taatgtgggc	actcggggag	1140
aatatggcac	cggaaaaaatt	ggactttgag	gactgcaaag	atattggcga	tctgaaacag	1200

## Mit-0506.ST25.txt

tatcaaagtg atgagccaga gctcagatcg atagcaagct ggatccagag tgagttcaac	1260
aaggcatgtg aattgaccga ttcgagctgg atagaactcg atgagatagg ggaagatgtt	1320
gcccccaattg agcacattgc aagcatgaga aggaactact tcacagcgga agtgtctcat	1380
tgcagggcca ctgagtacat aatgaagggg gtttacataa atacagcttt gctcaatgca	1440
tcttgtgcag ccatggatga cttccaactg attccaatga taagcaaagc cagaacaaaa	1500
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gaaaacagat cggagacatg gccaattgga gagtcaccta agggagtgga ggaaggctca	1920
atcggaagg tgtgcagaac ctactagca aaatctgtgt tcaacagcct atattcatct	1980
ccacaactcg aaggattttc agctgaatcg agaaaactac tactcattgt tcaagcactt	2040
agggacaacc tggaacctgg aacctttgat cttgaagggc tatatggagc aattgaggag	2100
tgcctgatta atgatccctg ggttttgctt aatgcatctt ggttcaactc cttcctcaca	2160
catgcactaa aatagttgtg gcaatgctac tatttgctat ccatactgtc caaaaaagta	2220
ccttgtttct act	2233

<210> 127  
 <211> 2182  
 <212> DNA  
 <213> Influenza virus type A PA segment

<400> 127	
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attgtcgagc ttgcggaaaa aacaatgaaa gagtatgggg aggacctgaa aatcgaaaca	120
aacaaatttg cagcaatatg cactcacttg gaagtatgct tcatgtattc agatttcac	180
ttcatcaatg agcaaggcga gtcaataatc gtagaacttg gtgatcctaa tgcacttttg	240
aagcacagat ttgaaataat cgagggaaga gatcgacaaa tggcctggac agtagtaaac	300
agtatttgca aactacagg ggctgagaaa ccaaagtttc taccagattt gtatgattac	360
aaggaaaata gattcatcga aattggagta acaaggagag aagttcacat atactatctg	420
gaaaaggcca ataaaattaa atctgagaaa acacacatcc acattttctc gttcactggg	480
gaagaaatgg ccacaaaggc cgactacact ctcgatgaag aaagcagggc taggatcaaa	540
accaggctat tcaccataag acaagaaatg gccagcagag gcctctggga ttcctttcgt	600

Mit-0506.ST25.txt

cagtccgaga gaggagaaga gacaattgaa gaaaggtttg aaatcacagg aacaatgcg	660
aagcttgccg accaaaagtct cccgccgaac ttctccagcc ttgaaaattt tagagcctat	720
gtggatggat tcgaaccgaa cggctacatt gagggcaagc tgtctcaa	780
gtaaatgcta gaattgaacc ttttttgaaa acaacaccac gaccacttag acttccgaat	840
gggcctccct gttctcagcg gtccaaattc ctgctgatgg atgccttaaa attaa	900
gaggacccaa gtcatgaagg agaggggaata ccgctatatg atgcaatcaa atgcatgaga	960
acattctttg gatggaagga acccaatgtt gttaaaccac acgaaaaggg aataaatcca	1020
aattatcttc tgtcatggaa gcaagtactg gcagaactgc aggacattga gaatgaggag	1080
aaaattccaa agactaaaaa tatgaaaaaa acaagtcagc taaagtgggc acttggtgag	1140
aacatggcac tatgatagt atgaaccaga attgaggtcg cttgcaagtt ggattcagaa	1200
tgagttcaac aaggcatg	1260
agaagatgtg gctccaattg aacacattgc aagcatgaga aggaattatt tcacatcaga	1320
ggtgtctcac tgcagagcca cagaatacat aatgaagggg gtgtacatca atactgcctt	1380
acttaatgca tcttgtgcag caatggatga tttccaatta attccaatga taagcaagt	1440
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cccaagactt gaaccacaca aatgggagaa gtactgtgtt cttgagatag gagatatgct	1620
tctaagaagt gccataggcc aggtttcaag gcccattgtt ttgtatgtga ggacaaatgg	1680
aacctcaaaa attaaaatga aatggggaat ggagatgagg cgttgtctcc tccagtcact	1740
tcaacaaatt gagagtatga ttgaagctga gtcctctgtc aaagagaaaag acatgaccaa	1800
agagttcttt gagaacaaat cagaaacatg gccattgga gagtctccca aaggagtgga	1860
ggaaagtctc attgggaagg tctgcaggac tttattagca aagtcggtat ttaacagctt	1920
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tcaggctctt agggacaatc tggaacctgg gacctttgat cttggggggc tatatgaagc	2040
aattgaggag tgcctaatta atgatccctg ggttttgctt aatgcttctt ggttcaactc	2100
ttccttacac atgcattgag ttagttgtgg cagtgtact atttgctatc catactgtcc	2160
aaaaaagtac cttgtttcta ct	2182

<210> 128  
 <211> 2233  
 <212> DNA  
 <213> Influenza virus type A PA segment

<400> 128	
agcgaaagca ggtactgatt caaaatggaa gattttgtgc gacaatgctt caatccgatg	60

## Mit-0506.ST25.txt

attgtcgcgagc ttgcggaaaa ggcaatgaaa gagtatggag aggacctgaa aatcgaaaca	120
aacaaatttg cagcaatatg cactcacttg gaagtgtgct tcatgtattc agattttcac	180
ttcatcgatg agcaaggcga gtcaatagtc gtagaacttg gcgatccaaa tgcacttttg	240
aagcacagat ttgaaataat cgaggggaaga gatcgacaaa tagcctggac agtaataaac	300
agtattttgca acactacagg ggctgagaaa ccaaagtttc taccagattt gtatgattac	360
aagaagaata gattcatcga aattggagta acaaggagag aagttcacat atactatctg	420
gaaaaggcca ataaaaattaa atctgagaag acacacatcc acattttctc attcactggg	480
gaggaaatgg ccacaaaggc cgactacact ctcgatgaag aaagcagggc taggatcaaa	540
accaggctat tcaccataag acaagaaatg gctagcagag gcctctggga ttcctttcgt	600
cagtccgaga gaggcgaaga gacaattgaa gaaagatttg aaatcacagg aacaatgcgc	660
aagcttgccg accaaagtct cccgccaaac ttctccagcc ttgaaaattt tagagcctat	720
gtggatggat tcgaaccgaa cggctacatt gagggcaagc tttctcaaat gtccaaagaa	780
gtaaatgcta gaattgaacc ttttttgaaa tcaacaccac gaccacttag acttccggat	840
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gaggacccaa gtcatgaggg agaggggata ccgctatatg atgcaatcaa atgcatgaga	960
acattctttg gatggaagga acccaatggt gttaaaccac acgaaaaggg aataaatcca	1020
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aacatggcac cagaaaagggt agactttgac gattgtaaag atgtaggcga tttgaagcaa	1200
tatgatagtg atgaaccaga attgaggtcg cttgcaagtt ggattcagaa tgagttcaac	1260
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tcctgtgcag caatggatga tttccaatta attccaatga taagcaagt tagaactaag	1500
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aatgacaccg atgtggtaaa ctttgtgagc atggagtttt ccctcactga cccaagactt	1620
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gccataggcc atgtgtcaag gcctatgttc ttgtatgtga ggacaaatgg aacctcaaaa	1740
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gagagtatga ttgaagctga gtcctctgtc aaggagaaaag acatgaccaa agagtctttt	1860
gaaaacaaat cagaaacatg gcccgttggg agtccccca aaggagtggg ggaaggttcc	1920
attgggaagg tctgcagaac tttattggca aagtcggtat tcaacagctt gtatgcatct	1980

## Mit-0506.ST25.txt

ccacaactgg aaggattttc agctgaatca agaaaaactgc ttcttatcgt tcaggctctt	2040
agggacaacc tggaacctgg gacctttgat cttggggggc tatatgaagc aattgaggag	2100
tgacctgatta atgatccctg ggttttgctt aatgcttctt ggttcaactc cttcctcaca	2160
catgcattga gatagttgtg gcaatgctac tatttgctat ccatactgtc caaaaaagta	2220
ccttgtttct act	2233

&lt;210&gt; 129

&lt;211&gt; 2183

&lt;212&gt; DNA

&lt;213&gt; Influenza virus type A PA segment

&lt;400&gt; 129

agcgaaagca ggtactgatc caaaatggaa gaatttgatg gacaatgctt caatccaatg	60
atcgctcgagc ttgcggaaaa gacaatgaaa gaatatggag aggacccgaa gattgaaaca	120
aacaaattcg cagcaatatg cacacatttg gaagtgtgtt tcatgtattc agattttccac	180
tttattgatg aacggggaga gtcaaagatt gtagaatctg gtgacccaaa tgcactcttg	240
aagcaccgat ttgagataat tgaaggaaga gatcgcacga tggcctggac ggtggtgaat	300
gtatgattat aaggagaacc gattcattga aattggagtg acaagaaggg aggtccacat	360
atactactta gaaaaagcca ataagataaa atctgagaag acacacatcc acatcttctc	420
attcactggg gaagaaatgg ccactaaggc ggactacact cttgatgaag agagcagagc	480
aaggatcaaa accaggctat tcaccataag acaagaaatg gccagtagag gcctctggga	540
ttcctttcgt cagtcgaga gaggcgaaga gacaattgaa gaaagatttg aaatcacagg	600
aaccatgctc aggcttgccg aacaaagtct cccaccgaac ttctccagcc ttgaaaactt	660
tagagcctat gtggatggat tcaaaccgaa cggctgcatt gagggcaagc tttctcaaat	720
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attaagcatt gaagacccaa gtcattgagg ggaggggata ccactacatg atgcaatcaa	900
atgcatgaag acattctttg gctggaaaga gcccaatatt gtcaaaccgc atgagaaggg	960
cataaatccc aactatctcc tggcttggaa ccagggtgcta gcagaactga aggatattga	1020
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agaagatgta gcccgaatcg agcacattgc aagtatgagg agaaactatt tcacagcgga	1320
agtgctctac tgcagggcaa cggagtacat aatgaaaggg gtatacataa acacggcctt	1380

## Mit-0506.ST25.txt

gctcaatgca tcttgtgcag ctatggatga cttccagctg atcccaatga taagcaaatg	1440
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tcacttgagg aatgatactg atgtgggtgaa ttttgtgagc atggagttct ctctcactga	1560
cccgaggctt gagccacaca agtgggagaa gtatttgtgtt cttgaaatag gagacatgct	1620
cctgcggaact gcaataggcc aagtatcaag gcccatgttc ctgtatgtga gaaccaatgg	1680
aacctccaaa atcaagatga aatgggggtat ggagatgaga cgttgccttc ttcagtcctc	1740
tcaacagggtt gaaagcatgg ttgaggctga gtcctctgtc aaggagaaaag acatgactaa	1800
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agaaggttcc atcgggaaaag tgtgcaggac cttactggcg aagtctgtat ttaacagctt	1920
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tcaggctctt agagacaacc tggaacctgg aaccttcgat cttggagggc tatatggagc	2040
aattgaggag tgcctgatta atgatccctg ggttttgctt aatgcatctt ggttcaactc	2100
cttcctcaca catgcaactga aatagtgtg gcaatgctac tatttgctat ccatactgtc	2160
caaaaaagta ccttgtttct act	2183

<210> 130  
 <211> 2090  
 <212> DNA  
 <213> Influenza virus type A PA segment

<400> 130	
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atgaaagaat atggagaggg cccgaaaatc gaaacaaaca aatttgcagc aatatgcact	120
catttggaag tgtgtttcat gtattcagac ttctacttca tcgatgagcg aggcgaatca	180
ataattgtag aatccggaga tccgaatgcc ctcttgaagc acagatttga aataattgag	240
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gagaagccaa ggtttctccc agatctatat gactacaagg agaacagggtt cattgagatt	360
ggagtgcaca ggagagaagt ccacatatac tacctggaaa aggccataa aataaagtct	420
gagaagacac atatccacat cttctcgttc acaggagaag agatggccac aaaggctgac	480
tacactcttg atgaagaaaag tagggccaga atcaaaaacta gactgttcac cataaggcag	540
gaaatggcca gttagaggtct ctgggattcc tttcgtcagt ccgagagagg cgaagagaca	600
attgaagaaa gatttgaaat cacaggaaca atgcgaggc ttgccgacca aagtctccca	660
ccgaacttct ccagccttga aaactttaga gcctatgtgg atggattcga accgaacggc	720
tgcattgagg gcaagctttc tcaaatgtcc aaagaagtga atgcaagaat tgaacccttt	780
ttgaagacaa caccacgccc actcaagcta ccagatgggc ctccctgctc ccagcgggtc	840



Mit-0506.ST25.txt

aaattcctgc taatggacgc tttgaaatta agcattgagg acccaagcca tgaaggagaa	900
gggataccgc tatatgatgc aatcaaatgc atgaaaacat tctttgggtg gaaagaaccc	960
aatattgtta aaccacatga aaaaggaata aatccgaatt acctcttggc atggaaacaa	1020
gtactagcgg aactacagga tcttgaaaat gaagagaaaa ttccaaagac taaaaacatg	1080
aagaaaacaa gccaattaaa gtgggcactt ggtgagaata tggcaccaga aaaagtggat	1140
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agatcgcttg caagtgggat tcagagtgaag ttcaataagg cgtgtgaact gactgattca	1260
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aaaggggtat acatcaatac tgccttgctc aatgcatcct gtgcggctat ggatgacttt	1440
caactgattc caatgatcag caagtgtaga actaaagagg gaagaagaaa gacaaatttg	1500
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acctggaacc tttgatcttg gaggattgca tgaagcaatt gaggagtgcc tgattaatga	2040
ccccctgggtt ttgcttaatg catcttggtt taactccttc ctcacacatg	2090

<210> 131

<211> 2133

<212> DNA

<213> Influenza virus type A PA segment

<400> 131

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atcgtcgagc ttgcggaaaa ggcgatgaaa gaatatggag aggacccgaa aattgaaaca	120
aacaaatttg cagcaatatg cactcacttg gaagtctgct tcatgtactc ggatttccac	180
tttattaatg aactgggcga gtcagtgatc atagagtctg gtgatccaaa tgctcttttg	240
aagcacagat ttgaaatcat tgaagggaga gatcgaacaa tggcatggac agtagtgaac	300
agtatctgca acaccacaag agctgaaaaa cccaagttcc tcccagattt gtacgactat	360
aaagagaaca ggtttggtga aattgggtgtg acaaggagag aagttcacat atactacttg	420

## Mit-0506.ST25.txt

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gaggaaatgg	ctacaaaagc	ggattatacc	cttgatgaag	aaagtagagc	caggatcaaa	540
accagactat	tcaccataag	acaagaaatg	gccagcagag	gcctttggga	ctcctttcgt	600
cagtccgaga	gaggcgaaga	gacaattgaa	gaaagatttg	aaatcacagg	gacaatgcgc	660
aggcttgccg	attacagtct	cccaccgaac	ttctccagcc	attttcaaag	acaacacccc	720
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ggttcaactc	cttccttaca	catgcactaa	agtagttgtg	gcaatgctac	tatttgctat	2100
ccatactgtc	caaaaaagta	ccttgtttct	act			2133

<210> 132  
 <211> 2233  
 <212> DNA

&lt;213&gt; Influenza virus type A PA segment

&lt;400&gt; 132

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atcgtcgagc ttgcggaaaa ggcaatgaaa gaatatggag aggatccaaa aatcgagaca	120
aacaaattcg ctgcaatatg cacacacctg gaagtgtgtt tcatgtattc agacttccat	180
ttcattgatg aacgggggtga gtcgataatt gttgagtctg gtgatccaaa tgcactctta	240
aaacatcgat ttgaaataat cgaaggaaga gaccgtacta tggcctggac agtgggtgaat	300
agcatttgca acaccacagg agttgagaag ccaaagtttc ttccggactt atatgattat	360
aaagaaaatc gtttcattga aattggagtg acaaggaggg aggtccatat atactatcta	420
gaaaaggcca ataagataaa gtctgagaag acacacatcc atatcttttc attcactgga	480
gaagaaatgg ccacaaaagc agactacact cttgatgaag agagtagagc aaggatcaaa	540
accagactat tctactataag acaagaaatg gccagtagag gtctctggga ttcctttcgt	600
cagtccgaga gaggcgaaga gacaattgaa gaaagatttg aaattacagg aaccatgctc	660
aggctcgccg accaaaagtct cccaccgaac ttctccagcc ttgaaaactt tagagcctat	720
gtggatggat tcgaaccgaa cggctgcatt gagggcaagc tttctcaaat gtccaaagaa	780
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accttttttg gctggaaaga gcccaacatt gtcaagccac atgagagggg cataaacctt	1020
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aagattccaa agacaaaaaa catgaagaaa acaagccaat taaagtgggc acttggtgag	1140
aacatggcac cagagaaagt ggactttgaa gattgcaagg atgtcagcga tttgaaacag	1200
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aaagcttgat aattgactga ttcaagctgg atagaactcg atgaaatagg ggaaaatgtc	1320
gccccaatcg agcatattgc aagcatgagg aggaattatt ttacagctga agtgtctcac	1380
tgcagggcaa cagagtacat aatgaaggga gtgtacataa actcagcttt actcaacgcc	1440
tcttgtgcag ccatggatga ttttcagttg atcccaatga taagcaaatg cagaacaaaa	1500
gaaggacgac ggaaaacaaa tttgtatgga ttcatacataa aggggaaggtc tcatttgagg	1560
aatgatactg atgtgggtgaa ttttgtgagc atggaatttt ctcttactga ccctagatta	1620
gaaccacaca agtggggagaa gtattgtgtc cttgaaatag gggatatgct cctacgaact	1680
gcaataggcc aagtttcaag acccatgttt ctgtatgtga caaccaatgg aacttccaag	1740
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## Mit-0506.ST25.txt

gaaagcatga ttgaggccga gtcctctgtc aaggaaaaag acatgactaa agaattcttt 1860  
 gaaaacaagt cggagacatg gccattgga gaatcaccca aaggagtaga agaaggttcc 1920  
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 ccttgtttct act 2233

&lt;210&gt; 133

&lt;211&gt; 1635

&lt;212&gt; DNA

&lt;213&gt; Influenza virus type A PA Segment

&lt;400&gt; 133

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 tatgatgcga tcaaatgcat gaaaacattt ttcggctgga aagagcccaa aattatcaag 480  
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## Mit-0506.ST25.txt

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## Mit-0506.ST25.txt

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 Page 40



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<210> 156  
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<210> 157  
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<220>  
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<400> 157  
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<210> 158  
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<400> 163  
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<220>
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<400> 185
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<400> 186
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